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**HIGH EFFICIENCY INDUCTION HEATING AND MELTING SYSTEMS****Abstract of the Disclosure**

10           An induction heating and melting system uses a crucible formed from a material that  
has a high electrical resistivity or high magnetic permeability, and one or more inductor coils formed  
from a wound cable consisting of multiple individually insulated copper conductors to form an  
induction furnace that, along with its associated power supply, provides a compact design. The  
system components are air-cooled; no water-cooling is required. The crucible may alternatively be  
15   shaped as a tunnel or enclosed furnace.